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Against Overt Particle Incorporation

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1. Introduction

Due to their heterogeneous structural and semantic properties, verb-particle constructions are an interesting borderline case between morphology and syntax. In this paper I adopt the view that the particle and the verb are represented as two independent heads in the syntax, but I will argue against a rule of overt particle incorporation for German and Dutch. Instead, I will suggest that the particle and the verb combine at LF via abstract incorporation (cf. Baker 1988). This covert movement of the particle is required to allow "late insertion" of the lexical semantics of the particle verb at LF. Overt movement of the particle is not necessary and is therefore excluded by economy considerations (Chomsky 1995).

The idea that the particle is the head of a phrasal (Small Clause- or PP-) complement of the verb in syntax contrasts with approaches that assume that particle verbs are morphologically derived in the lexicon and inserted as complex verbal heads.[1] One standard argument against lexical analyses comes from examples like (1) (cf. Emonds 1972; Den Dikken 1995:38f.):

(1) (a) *John threw the ball right through the window*

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[1]Syntactic accounts have first been proposed by Emonds (1972), van Riemsdijk (1978), and Taraldsen (1983), and have been further elaborated by proponents of the Small Clause (SC-)-analysis (Kayne 1985; Hoekstra 1988; Grewendorf 1990; Mulder 1992; Den Dikken 1995, among many others). The lexical approach is adopted for example in Koster (1975), Booij (1990), Johnson (1991), Neeleman and Weerman (1993), Neeleman (1994), Stiebels and Wunderlich (1994), and Stiebels (1996).

(b) **John right threw the ball through the window*
(c) *John threw the ball right back/up/down*

The adverbial *right* can modify PPs, but not verbs, as shown in (1)(a) and (b). If (1)(c) was derived by excorporating the verbal part of a complex verbal head, as the lexical analysis predicts, we would expect ungrammaticality, since *right* would still modify a verb. However, (1)(c) is grammatical. This follows only from a syntactic analysis that associates the particles in (c) with a PP.

Furthermore, there is a conceptual problem with the lexical approach. Lapointe's (1979) Principle of Lexical Integrity or the Thesis of the Atomicity of Words (Di Sciullo and Williams 1987) are prominent formulations of the insight that syntactic rules cannot refer to parts of the morphological structure of a word. If particle verbs were morphologically complex words and V°-heads in syntax, the separation of the verb and the particle in examples like (1)(c) would violate these principles. Although several proposals have been made to deal with this problem in lexical frameworks (cf. Booij 1990; Stiebels and Wunderlich 1994; Neeleman 1994), I still consider it a major advantage of all syntactic approaches that the separation of the particle and verb does not require any additional stipulations.

In section 2, I show that the properties of particle verbs in German[2] follow straightforwardly from the assumption that the particle and the verb do not form a complex head in overt syntax. Some apparent counterevidence is addressed in section 3. The idea that covert particle movement is necessary to allow late lexical insertion, and some implications of my proposal for the relationship between the word formation component and syntax, are discussed in section 4.

2. The Covert Incorporation Approach

In German root clauses, the verb moves to Comp° to derive verb second (V2). The particle must be stranded:

[2]In section 2, I restrict myself to a discussion of German data, since Dutch behaves in the same way in the relevant cases. However, I turn to Dutch in section 3.2 where I discuss Verb Raising.

(2)(a) *Peter schließt die Tür ab* (**Peter abschließt die Tür*)
Peter locks the door Prt

(b) *Peter trinkt sein Bier aus* (**Peter austrinkt sein Bier*)
Peter drinks his beer Prt

In embedded clauses, the verb is in clause final position (assuming that German is SOV), and the particle and verb are adjacent:

(3)(a) *daß Peter die Tür abschließt*
that Peter the door Prt-locks
(b) *daß Peter sein Bier austrinkt*
that Peter his beer Prt-drinks

It has been argued (cf. van Riemsdijk 1978; Grewendorf 1990) that whenever the particle is adjacent to the inflected form of the verb, they form a complex head, derived by overt incorporation of the particle into the verb. Let me call this the *Overt Incorporation Approach* (OIA) to particle verbs. In contrast, I will argue that the particle does not incorporate overtly, but only at LF. I call this analysis the *Covert Incorporation Approach* (CIA). (5) shows that the CIA still predicts that particle and verb are adjacent at S-structure, although no overt particle movement has taken place:[3]

(4) OIA: $[_{C'}$ weil $[_{IP}$ Peter $[_{I'}$ $[_{VP}$ die Tür $[_{PP}$ t_i] t_{i+j}][ab_i schließt$]_{i+j}$]]]
(5) CIA: $[_{C'}$ weil $[_{IP}$ Peter $[_{I'}$ $[_{VP}$ die Tür $[_{PP}$ ab] t_i] [schließt$]_i$]]]

Since (5) is the S-structural representation, the phonology still "sees" verb and particle as adjacent. However, in order to get the right semantics for the verb-particle construction, the particle must incorporate at LF to form a complex predicate with the verb (see

[3]In (4) and (5) I represent the maximal projection of the particle as a PP. I do not adopt the SC-approach here because the SC-analysis predicts that all particles are one-place predicates - recall that a SC is a "small clause". This, however, is not the case. For example, particles can also function as aspectual operators or saturate a predicative argument position of the verb (see Stiebels 1996 and section 4).

section 4 below). In the following sections, I will provide arguments against the OIA and in favor of the CIA.[4]

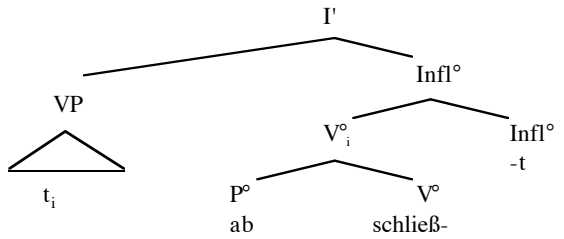
2.1. Verb Second

The first argument against overt movement of the particle comes from V2. Here the verb and the particle are clearly separated in overt syntax, a non-trivial problem for the OIA. There are two possible ways for the OIA to deal with V2. First, overt incorporation could be taken to be optional, simply not applying if the verb moves to Comp°. However, this view requires that the particle somehow has to "know" where the verb will end up in the derivation before it "decides" whether to incorporate or not. Furthermore, it is reasonable to assume that the particle and the verb have to combine at some stage in order to allow late lexical insertion. Hence the optionality view requires both abstract and overt incorporation (the former in V2; the latter in all other cases). It is clear that the CIA, which assumes abstract incorporation of the particle for all cases, is conceptually simpler. Furthermore, it is in accordance with Chomsky's (1995) Minimalist Program, where optional movement is excluded on general grounds.

Alternatively, proponents of the OIA could argue that the particle always incorporates overtly, but that V2 triggers *excorporation* of the verbal head. Excorporation, however, is explicitly ruled out in Baker (1988) in order to exclude traces in words. Indeed, if the trigger for particle incorporation is word-formation, excorporation out of the derived particle verb violates Lexical Integrity. Furthermore, there is a technical problem with excorporation. It seems to be a reasonable assumption for the OIA that after overt incorporation of the particle, the whole complex $[P°+V°]_{V°}$ moves and adjoins to Infl° (cf. (4)):

[4]Both Kayne (1985) and Den Dikken (1995) also reject overt particle movement in their (competing) analyses of verb-particle constructions in English. In a footnote, Kayne points out that it might be possible to account for the properties of particle verbs in Dutch without a rule of overt particle incorporation. But he does not further pursue this idea.

(6)



(6) shows that there is no segment of the complex Infl°-head that includes the inflected verb but excludes the particle; the finite verb cannot move to Comp° without the particle. This means that (6) cannot be an intermediate step towards V2. But there is no straightforward way to derive a complex Infl-head that allows further verb movement and stranding of the particle in Infl°. This is another problematic aspect of the OIA.

The most serious problem for the OIA, however, is that it fails to explain *why* the particle does not move with the verb in V2 if incorporation can take place overtly. One might stipulate that prepositional elements in general are not allowed in Comp°. This stipulation, however, is empirically wrong, as shown in (7)(c) and (8)(c):

(7)(a) *weil Peter sein Auto durch den Wald fährt*
because P. his car through the forest drives

(b) *weil Peter den Wald* (*mit seinem Auto*) *durchfährt*
because P. the forest (with his car) through-drives

(c) *Peter durchfährt den Wald* (*mit seinem Auto*)
Peter through-drives the forest (with his car)

(8)(a) *weil Peter den Hubschrauber über die Stadt fliegt*
because P. the helicopter over the city flies

(b) *weil Peter die Stadt* (*mit dem H.)*) *überfliegt*
because P. the city (with the h.) over-flies

(c) *Peter überfliegt die Stadt* (*mit dem Hubschrauber*)
Peter over-flies the city (with the helicopter)

(7) and (8) show instances of the applicative construction in German. The heads of the directional PPs in the (a)-examples can incorporate into the verb, turning their complements into the direct ob-

jects (the former direct objects can be realized as oblique phrases). Crucially, in verb second, the whole derived complex verb moves to Comp° ((7)(c) and (8)(c)); stranding of the incorporated preposition is impossible. This shows that there is no ban on $[P°+V°]_{V°}$ in Comp°. However, if the possibility of overt incorporation exists in principle, it is then hard to see why particles are not allowed to move with the verb.

None of these cases poses a problem for the CIA. Since the verb and the particle are generated in different syntactic positions, the default assumption is that syntactic rules that trigger verb movement apply as usual and only affect the verb. Movement of the particle is not required before LF.[5] Provided that, following Chomsky (1995), LF operations are "less costly" than overt movement, overt raising of the particle is barred by economy principles (Procrastinate) because it is never forced for convergence.[6]

2.2. *zu*-Infinitives

The infinitival marker *zu* is located in Infl° (cf. Grewendorf and Sabel 1994; Sabel 1996) and always precedes the verb. Therefore, the verb right-adjoins to Infl° in infinitives, and consequently, *zu* also precedes prepositions that are incorporated into the verb (cf. (7) and (8) above):

(9)(a)	*zu durchfahren*	(b)	*zu überfliegen*
	to through-drive		to over-fly

However, *zu* always intervenes between the particle and the verb:

(10)(a)	*ab<u>zu</u>schließen*	(b)	*aus<u>zu</u>trinken*
	Prt-to-lock		Prt-to-drink

[5]I assume that at LF, moved verbs have to be reconstructed into their base positions to make semantic computation possible (cf. von Stechow 1996). This reconstruction precedes incorporation of the particle.

[6]Note, however, that my account differs from that of the Minimalist Program in that LF movement is not motivated by (weak) feature checking but by the lexical semantics of the particle verb.

According to the OIA, the infinitives in (10) form complex heads. However, if the particle incorporates into V°, how does *zu* end up between the verb and the particle? The OIA predicts the wrong order *zu*-P°-V°, i.e. the one that is found with the "real" incorporated prepositions in (9). The CIA, in contrast, makes the right prediction: Since the particle stays *in situ* in overt syntax, it precedes the infinitival marker and the verb:

(11) $[_{CP}\ [_{IP}$ PRO $[_{I'}\ [_{VP}$ die Tür $[_{PP}$ ab$]$ $t_i]$ $_{I°}$[zu [schließen]$_i$]]]]

2.3. Intonation

A final argument comes from the stress pattern of particle verbs as oppossed to that of complex verbs derived by incorporation. As indicated by the sign ('), complex verbs like those in (7) and (8) always have stress on the base verb:

(12)(a) durch'fahren (b) über'fliegen

In contrast, particle verbs have the main stress on the particle:

(13)(a) 'abschließen (b) 'austrinken

If the particle verbs in (13) and the words in (12) were both complex heads, as the OIA predicts, the phonological difference would be surprising. The CIA, however, predicts the intonation pattern of particle verbs. Since the particle remains inside the PP-complement at S-structure, it behaves exactly like other complements with respect to intonation:

(14)(a) nach 'Hause gehen (stress inside PP)
"go home"

(b) 'traurig sein (stress inside AP)
"be sad"

(c) ein 'Buch lesen (stress inside DP)
"read a book"

To summarize, the OIA fails to explain the properties of particle verbs, whereas the CIA accounts for the facts in a straightforward way. I therefore conclude that the OIA has to be rejected.

3. Apparent problems for the CIA

3.1. Extraposition and adjacency

In this section I want to discuss evidence in favor of the OIA. Let me first turn to the strong adjacency requirement found with particle verbs. According to the CIA, there is always at least one maximal projection (namely, VP) that intervenes between verb and particle. The structure in (5) above hence predicts that extraposed phrases that right-adjoin to VP can appear between a particle and the verb. However, (15)(c) shows that this seems impossible:

(15)(a) *daß Peter das Heu mit der Heugabel ablädt*
that Peter the hay with the fork Prt-loads
(b) *daß Peter das Heu* t_i *ablädt* [*mit der Heugabel*]$_i$
that Peter the hay Prt-loads with the fork
(c) **daß Peter das Heu* t_i *ab* [*mit der Heugabel*]$_i$ *lädt*
that Peter the hay Prt with the fork loads

But does (15)(c) really show that the particle has incorporated into the verb? The answer is no. As shown in (16) and (17), extraposed constituents cannot intervene between non-minimal secondary predicates and the verb, either:

(16)(a) *daß Peter das Bild in seinem Zimmer zu Ende malte*
that Peter the picture in his room to end painted
"that Peter finished the painting in his room"
(b) *daß P. das Bild* t_i *zu Ende malte*[*in seinem Zimmer*]$_i$
that P. the picture to end painted in his room
(c) **daß P. das Bild* t_i *zu Ende* [*in seinem Zimmer*]$_i$ *malte*
that P. the picture to end in his room painted
(17)(a) *daß Peter mit seinem Hund nach Hause ging*
that Peter with his dog to home went
"that Peter went home with his dog"

(b) *daß Peter* t_i *nach Hause ging* [*mit seinem Hund*]$_i$
that Peter to home went with his dog
(c) **daß Peter* t_i *nach Hause* [*mit seinem Hund*]$_i$ *ging*
that Peter to home with his dog went

The data in (16)(c) and (17)(c) cannot be explained by assuming incorporation, since the resultative PP in (16) and the directional PP in (17) cannot undergo head movement. It seems reasonable to look for an account that explains both (15)(c) on the one hand and (16)(c) and (17)(c) on the other.

The account I want to suggest is based on a proposal made by Truckenbrodt (1995) who argues that extraposition is phonologically constrained. I assume that phonological phrases cannot be separated by extraposed material. Since in the (a)-examples of (15)-(17) the verb and the secondary predicate (regardless of its minimal or non-minimal status) always form a phonological phrase, extraposition must move the PPs in (15)-(17) to the right boundary of this phrase. Hence, the PPs must right adjoin to IP, as in the grammatical (b)-examples, and the (c)-examples are ruled out.

However, if the extraposed PP itself does not form a phonological phrase, it is possible to integrate it into the prosodic category formed by the verb and the secondary predicate:

(18)(a) ?*daß Peter sich* da_i *ganz gut aus* [t_i *mit*] *kannte*
that Peter himself there quite good Prt with knew
"that Peter was quite knowledgeable about it"
(b) ?*weil Peter* da_i *schließlich wieder ab* [t_i *von*] *kam*
because P. there finally again Prt from came
"because Peter finally gave it up"
(c) ??*als Peter* t_i *an* [*zu weinen*]$_i$ *fing*
when Peter Prt to cry caught (lit.)
"when Peter started to cry"

In (18)(a) and (b), the pronominal complement of the postposition has been scrambled. The extraposed PP now only includes its head and therefore can intervene between the particle and the verb. In (18)(c), even an extraposed clause can appear between verb and particle. Although slightly marginal, sentences like those in (18) occur frequently in spoken German and show that the particle and the verb

do not form a complex head in overt syntax, contrary to what the OIA suggests. Instead, they behave exactly like other predicative complements of the verb. Since the OIA can neither account for (16)(c) and (17)(c) nor for the data in (18), the apparent argument in favor of the OIA turns out to be another argument against it.

3.2. Verb Raising in Dutch

The strongest support for the OIA comes from Verb Raising (VR) in Dutch. VR is the process of raising the embedded infinitive and move it to the right of a VR-triggering matrix verb (cf. Evers 1975; van Riemsdijk 1978). (19) shows the possibilities with an embedded particle verb:

(19)(a) *dat ik Jan op* t_i *wil bellen*$_i$
that I Jan Prt want call
(b) *dat ik Jan* t_i *wil opbellen*$_i$
that I Jan want Prt-call; "that I want to call Jan up"

In (19)(a), the matrix verb *willen* has triggered movement of the base verb, stranding the particle. This is expected under the CIA. What is not expected, however, is movement of the complex particle verb *as one word* in (19)(b). If (19)(b) is really a case of head movement, then it provides an argument against the CIA.

One could argue that (19)(b) might be derived by Scrambling of the embedded object *Jan* and extraposition of the VP including the particle verb (the "Third Construction", cf. den Besten and Rutten 1989, or "Remnant Extraposition", cf. Broekhuis et al. 1995). However, such a strategy is clearly not available. Modals do not allow extraposition, as shown in (20):

(20) **dat hij wilde een huis kopen*
that he wants a house buy

Moreover, if the matrix verb appears in a perfect tense, the participle must be replaced by the infinitival form of the matrix verb in verb clusters. This so-called *Infinitivus Pro Participio* (IPP)-effect is obligatory with modals (cf. den Besten and Rutten 1989):

(21) *dat hij een huis heeft *gewild / willen kopen*
that he a house has *wanted-pp/want-IPP buy

We have to conclude that the complex *wil opbellen* in (19)(b) really must be a complex head. But does this necessarily mean that overt particle incorporation has taken place?

As an alternative, I suggest that the verb complex in (19)(b) is not the result of verb movement in the syntax, but has been derived in the lexicon.[7] In Bierwisch (1990) it has been suggested that modal verbs can function as pseudo-affixes that combine with verbs in the lexicon. The result is a single, but internally complex, verb. According to this approach, the derivation of a verb cluster like the one in (19)(b) proceeds as follows: The particle verb is generated in the lexicon by compositionally combining the semantics of the verb and the particle.[8] The affixal character of the modal is represented by a predicative argument position that is associated with the lexical category feature [+V]. The modal may now combine with the derived particle verb by Function Composition, and the complex verb inherits the argument structure of the particle verb.

Although the possibility to derive verb clusters in the lexicon solves the VR-problem for the CIA, one may object that I have now made two incompatible claims about the derivation of particle verbs. On the one hand, I have suggested that *opbellen* in (19)(b) has been derived in the lexicon. On the other hand, I have argued throughout this paper that the particle and the verb are two separated heads and do not form a complex head in overt syntax. In the following section I will show that these two claims are only apparently contradictory.

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[7]Bennis (1992) shows that in verb clusters that consist of more than two verbs, the possible distribution of a particle cannot be derived by strict cyclic particle incorporation. This is another argument against the OIA. However, since I do not see how the alternative lexical approach suggested here could account for Bennis' observation, I leave this point open.

[8]See Stiebels (1996) for a detailed analysis of the semantics of German verb-particle constructions. Dutch particle verbs may be analyzed along the same lines.

4. Particle verbs as lexical objects

Although I have argued above that particle verbs do not enter the derivation as V°-heads, there is also strong evidence that they are lexical objects, i.e. that the complex $[Prt+V]_V$ must exist as a lexically derived entity. Note first that the particle and the verb do not combine in a semantically uniform way, as one might expect if the semantics was guided by the syntax. (22) illustrates that particles in German can fulfill all kinds of semantic functions:

(22)(a) particle introduces one argument:
das Mädchen anlachen
the girl Prt-laugh; "smile at the girl"

(b) particle saturates argument position:
den Griff ankleben (cf.: *den Griff an die Tür kleben*)
the knob Prt-glue, the knob at the door glue

(c) particle introduces two arguments:
sich einen Bauch anessen
oneself a belly Prt-eat; "eat until one has a belly"

(d) particle as an aspectual operator:
den Artikel anlesen
the article Prt-read; "read the article partly"

A stronger argument for the lexical status of particle verbs comes from the observation that particle verbs in German can undergo derivational morphology (cf. Neeleman 1994 for Dutch):[9]

(23)	(a)	*einführen*	-	*die Einführung*
		introduce		the introduction
	(b)	*ausleihen*	-	*die Ausleihe*
		lend out		the loan
(24)	(a)	*abschließen*	-	*unabgeschlossen*
		lock		unlocked

[9]Although some deverbal nouns and adjectives may be derived syntactically, this is definitely not true for all deverbal nominal and adjectival forms. For example, Kratzer (1994) shows that the prefix *un-* never attaches to phrasal adjectival participles. Hence the underlying form *abgeschlossen* modified in (30)(a) must be lexically derived.

(b) *anfechten* - *anfechtbar*
dispute disputable

I draw the following conclusion: particle and verb are in fact combined in the lexicon to form a complex verbal compound $[Prt+V]_V$. This lexical object can form the basis for further derivational processes occuring in the lexicon: Noun formation as in (23), adjective formation as in (24), or verb cluster formation, as shown in section 3 (the lexical derivation of complex verbs including particle verbs is therefore no exceptional process).

However, if the particle verb does not undergo further morphological operations, the complex verb is prevented from being inserted as a complex V°.[10] Instead, the particle and the verb have to be inserted as independent heads. Economy conditions prevent the particle from combining with the verb overtly, as argued in section 2. At LF, however, incorporation is forced by semantic conditions: The meaning of the particle verb must somehow be "inserted" before the structure is semantically interpreted. But this insertion is only possible if the verb and the particle form a complex head at some stage of syntax; the lexical entry $[Prt+V]_V$ can only be "superimposed" on a syntactically derived head structure $[P°+V°]_{V°}$.

This is essentially the core idea behind Borer's (1988; 1991) system of Parallel Morphology. Borer argues that the output of morphological operations can be inserted at every stage of the derivation as long as the syntax creates the right environment for this insertion. For example, incorporation of an adjective like *wide* into a verbal head yields a structure that allows the insertion of the morphological word *widen* derived in the word formation component of grammar. My analysis of particle verbs requires the extension of Borer's system in three respects: First, late insertion is not only possible at S-structure, but also at LF. Second, this insertion affects only the semantic part of the entry of a derived particle verb (its

[10]I think that the answer to the question *why* there is a ban on this kind of particle verb insertion is an essential step towards a full acount of particle verbs. At this point, I can only speculate on the solution. I suppose that considerations about the syntactic representation of argument structural and aspectual properties of lexical elements provide the key to an answer (see Groos 1989 for some discussion).

phonological information, of course, is not accessible at this level). Third, the semantics of the particle verb is "lexical" in the sense that the combination of both elements may require compositional devices only available in the lexicon.

In my analysis, abstract incorporation is motivated by the mismatch between the morphosyntactic and the semantic properties of particle verbs. In this respect, head movement at LF has an interesting parallel at the interface between syntax and phonology: In their theory of "Distributed Morphology", Halle and Marantz (1993) postulate an additional level of Morphological Structure (MS) between S-structure and PF. MS is "a syntactic representation that nevertheless serves as part of the phonology" (1993:114). At MS, operations like "merger" and "fusion" manipulate S-structure and create new terminal nodes that are associated with the phonological features of a specific lexical item. Halle and Marantz call this phonological interpretation of terminal nodes "Vocabulary Insertion".

Abstract incorporation may now be looked at as the "semantic" component of Distributed Morphology. At LF, a new complex terminal node is created that allows insertion of the semantics associated with a lexical item. This has an important consequence: Since terminal nodes only receive phonological features at MS, these features are not present during the syntactic derivation. Consequently, if the analysis I suggest here is correct, the semantic information of a lexical item cannot be present in the syntax, either, since it is only added at LF. Hence my account entails the strict separation of the phonological, semantic, and syntactic features of a lexical item. This view has very recently been advocated by Jackendoff (1997). Jackendoff argues that phonology, syntax, and semantics are three independent generative systems of grammar whose derivations are coordinated by correspondence rules. Lexical items, which (mostly) combine information from all three components, are therefore "small-scale" correspondence rules. Although Jackendoff's system differs in important respects from the analysis outlined here (for example, there is no LF and no covert movement in his theory), I suspect that many of the remaining questions can be answered by elaborating the consequences of Jackendoff's approach with respect to verb-particle constructions. I leave this as a goal of future research.

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